

NEW MIDWESTERN STATE RECORDS OF AQUATIC HEMIPTERA (CORIXIDAE: NOTONECTIDAE)¹

Stephen W. Chordas III², Eric G. Chapman³, Patrick L. Hudson⁴,
Margret A. Chriscinske⁴, Richard L. Stewart Jr.⁵

ABSTRACT: Recent aquatic Hemiptera collections have yielded 15 new state records distributed among four midwestern States. These records include two species of water boatmen (*Palmacorixa gillettei* and *Sigara mathesoni*) new for Indiana, four water boatmen species (*Cenocorixa utahensis*, *Corisella inscripta*, *Hesperocorixa laevigata*, *S. decorata*), including one genus (*Cenocorixa*), new for Michigan, four water boatmen species (*Corisella edulis*, *Trichocorixa macroceps*, *S. decoratella*, *S. mathesoni*) and one backswimmer species (*Notonecta indica*) new for Ohio, and four water boatmen species (*H. kennicotti*, *H. semilucida*, *S. compressoidea*, *S. variabilis*) new for Pennsylvania.

Information presented here is part of an ongoing investigation into the aquatic insect fauna of the Great Lakes region (Chordas and Hudson, 1999) and augments efforts to document the true bugs of the United States and Canada (Henry and Froeschner, 1988). We have identified Hemiptera specimens from back-logged and recent collections made through the year 2000. This work has resulted in the discovery of 15 new state records, which encompass four Corixidae species new to both Michigan and Pennsylvania, four Corixidae and one Notonectidae species for Ohio, two Corixidae species for Indiana.

METHODS

Adult insects were collected by black-light traps or dip-nets and preserved in 70% ethanol. Keys by Hungerford (1934, 1948) were used for identification. Geographic references include Chordas and Armitage (1998), Chordas (1999), Chordas and Hudson (1999), Froeschner (1962), Polhemus et al. (1988), Polhemus and Polhemus (1988). Voucher specimens were deposited in the aquatic invertebrate collection (herein labeled USGSC) at the Great Lakes Science Center - U.S.G.S. (Ann Arbor, Michigan) or in the first author's collection (herein labeled SWACC) (Columbus, Ohio).

¹ Received October 15, 2001. Accepted November 14, 2001.

² Ohio State University/Museum of Biological Diversity, 1315 Kinnear Road. Columbus, Ohio 43212.

³ Department of Biological Sciences, Kent State University. Kent, Ohio 44242.

⁴ Great Lakes Science Center, Biological Resources Division - U.S.G.S., 1451 Green Road. Ann Arbor, Michigan 48105.

⁵ Department of Biology, Shippensburg University of Pennsylvania, 1871 Old Main Drive. Shippensburg, Pennsylvania 17257.

NEW STATE RECORDS

INDIANA

Corixidae

Palmacorixa gillettei Abbott, 1912: This species distribution is primarily concentrated in the Great Lakes region with a few records to the west. It has previously been reported from Ohio (in a check list by Williams et al., 1996) and from Michigan bordering Indiana. This record bridges a gap in its distribution.

NEW RECORD: Pulaski County. Quiggly Marsh ditch, west of State Route 38 in Winamac, Indiana. (N41.062 : W-86.606) Steve Chordas III & Scott H. O'Dee. 2 August 1999 (SWACC) 20 Males (M) & 12 Females (F).

Sigara mathesoni Hungerford, 1948: This species is primarily distributed throughout the Great Lakes region with a few additional records (such as Missouri, New Jersey, Connecticut) in the Midwest and Northeast. It is known from two states bordering Indiana, Ohio (newly reported in this paper) and Michigan. This record fills a gap in its overall distribution.

NEW RECORD: Same location as for *P. gillettei*, (SWACC) 4M & 2F.

MICHIGAN

Corixidae

Cenocorixa utahensis (Hungerford, 1925): This species represents a new genus for Michigan, which increases the total number to eight genera. This record also represents an eastern range extension of about 250 km for this primarily western species. The previous easternmost records were from Wisconsin (Hilsenhoff, 1984).

NEW RECORD: Chippewa County, "modified" Dune pond at Whitefish Point (Lake Superior), Steve Chordas III, Eric Chapman & Margret Chriscinske, (N46.77 : W-84.95) 9 September 2000 (USGSC) 1M.

Corisella inscripta (Uhler, 1894): This species represents the second species of this recently reported genus for Michigan [*C. tarsalis* (Fieber, 1851) was reported in 1999]. Ohio is the only adjacent state with records of this species, all others are from States west of Missouri.

NEW RECORD: Emmet County, Open field pools in Wilderness State Park (Goose Bay), Steve Chordas III, Eric Chapman & Margret Chriscinske, (N45.75 : W-84.97) 8 September 2000 (USGSC) 1M & 1F.

Hesperocorixa laevigata (Uhler, 1893): The range of this water-boatmen spans the northern tier of the United States, from California & Washington to Rhode Island, Maryland and runs into Ontario, Canada. It has been recorded for every state and province bordering Michigan, except Indiana. Given this distribution, it was expected for Michigan.

NEW RECORD: Oceana County, Pentwater Lake (Lake Michigan), Pat Hudson, (N43.77 : W-86.42) July 1995 (USGSC) 1M & 2F.

Sigara decorata (Abbott, 1916): Currently known only from the United States, this species has a spotty distribution across the Midwest and Northeast. It is now known from eight states (Connecticut, Maine, Maryland, Massachusetts, Michigan, Minnesota, North Dakota, Wisconsin).

NEW RECORD: Mason County, Lincoln Lake (Lake Michigan), Pat Hudson, (N43.98 : W-86.44) 28 July 1995 (USGSC) 1M.

OHIO

Corixidae:

Corisella edulis (Champion, 1901): This genus (from *C. inscripta* records) was recently reported for Ohio. Although unreported for states bordering Ohio, this species may occur in the midwest and east as it is also known from Wisconsin, Tennessee and Florida.

NEW RECORDS: Hocking County, "Covert preserve", Benton Township, G.A. & H.K. Covert (N39.45 : W-82.60) 25 August 1996 & 7 September 1996 (Boonshoft Museum of Discovery, Dayton, Ohio) 1M & 1F (black-light sample); Scioto County, Small open field pool, southwest of junction of State Routes 348 & 73 (Otway, Ohio), Steve Chordas III, (N38.86 : W-83.18) 21 June 1997 (SWACC) 2M & 1F.

Sigara decoratella (Hungerford, 1926): This species has a wide but patchy distribution across the northern half of North America, and has been reported for Michigan and Pennsylvania bordering Ohio. Occurrence of this species in Ohio was predictable.

NEW RECORD: Vinton County, Arch Rock, Vinton Furnace Experimental Forest, Foster F. Purrington, (N39.20 : W-82.41) 18 June 1998 (SWACC) 1F (black-light sample).

S. mathesoni: All collections of this species reported in this paper were taken from cold water springs or their associated water-ways. No more than two other corixid species [*P. gillettei* and *Sigara alternata* (Say, 1825)] were found to occur with *S. mathesoni* in these habitats. These records fill another gap in the overall distribution of this species (see Indiana record for distribution).

NEW RECORDS: Champaign County, Cedar Bog State Nature Preserve (east branch Cedar Run), Steve Chordas III & Richard Stewart Jr., (N40.06 : W-83.79) 6 June 1998 (SWACC) 2F; Clark County, Prairie Road Fen State Nature Preserve, Steve Chordas III & Richard Stewart Jr., (N40.01 : W-83.70) 6 June 1998 (SWACC) 9M & 6F; Holmes County, Spring in Killbuck Wildlife Area (off State Route 83), Steve Chordas III & Eric Chapman, (N40.66 : W-81.94) 27 April 1997 (SWACC) 61M & 43F.

Trichocorixa macroceps (Kirkaldy, 1908): This water-boatman is currently known only from the United States. Its distribution hugs the Atlantic coastline, the Great Lakes and the St. Lawrence seaway, and a disjunct population is known from Texas. It has previously been reported for Michigan bordering Ohio. All our collections were from habitats near Lake Erie in Northeast Ohio.

NEW RECORDS: Ashtabula County, Pond in Geneva State Park (Crabapple picnic area), Steve Chordas III & Eric Chapman, (N41.85 : W-80.96) 12 October 1997 (SWACC) 48M & 53F; Geauga

County, Stump Lake (Punderson State Park), Steve Chordas III, (N41.46 : W-81.20) 17 May 1997 (SWACC) 18M & 37F.

Notonectidae:

Notonecta indica Linnaeus, 1771: This species was historically known from the southern United States. We collected specimens from the southern third of Ohio and suspect that this species will probably be restricted to the southern half of Ohio. West Virginia is the only state bordering Ohio with records of this backswimmer (Chordas et al., 1999). *Notonecta indica* was erroneously reported for Ohio by Williams et al. (1996); that record was based on a single specimen (since examined and retained by the senior author) that was determined to be an aberrant female of *Notonecta undulata* Say, 1832.

NEW RECORDS: Adams County, Pond, Tranquility Wildlife Area, Steve Chordas III (N38.98 : W-83.47) 2 September 1995 (SWACC) 15M & 23F; Brown County, Swamp in Indian Creek Wildlife Area (Archery range), Steve Chordas III (N39.18 : W-82.89) 7 April 1996 (SWACC) 11M & 6F; Jackson County, Pond, Cooper Hollow Wildlife Area (headquarters pond), Steve Chordas III, (N38.93 : W-82.52) 6 April 1997 (SWACC) 2M & 2F; Meigs County, Pond, on west side of junction of State Route 7/124 & U.S. Route 33, Steve Chordas III & Richard Stewart Jr., (N39.0 : W-82.01) 17 June 1998 (SWACC) 7M & 9F.

PENNSYLVANIA

Hesperocorixa kennicottii (Uhler, 1897): This species is generally distributed throughout northeastern North America and has been reported for every state bordering Pennsylvania except for Delaware and West Virginia. This species was expected for Pennsylvania.

NEW RECORD: Erie County, Dead Pond (Presque Isle), Steve Chordas III & Eric Chapman, (N42.16 : W-80.09) 23 June 2000 (USGSC) 1F.

Hesperocorixa semilucida (Walley, 1930): Chordas (1999) gave a detailed discussion of this species' distribution. This Pennsylvania record fills a gap in its overall distribution.

NEW RECORD: Erie County, Cranberry Pond (Presque Isle), Steve Chordas III & Eric Chapman, (N42.16 : W-80.11) 23 June 2000 (USGSC) 2M & 3F.

Sigara compressoidea (Hungerford, 1928): This water-boatman occurs throughout the Great Lakes and has isolated records in eastern North America. It was known from three states bordering Pennsylvania (Maryland, New York and New Jersey) and was expected for Pennsylvania.

NEW RECORD: Same as for *H. semilucida*, (USGSC) 10M & 14F.

Sigara variabilis (Hungerford, 1926): This species is known from the Great Lakes region and in scattered locations throughout northeastern North America. It was known from only two states bordering Pennsylvania (New York and New Jersey).

NEW RECORD: Same as for *H. kennicottii*, (USGSC) 2M & 2F.

ACKNOWLEDGMENTS

We thank Scott H. O'Dee (The Ohio State University, Aquatic Ecology Laboratory) for collection assistance and the late Antti Jansson (University of Helsinki, Finland) for verifying all 14 Corixidae species identifications. We are indebted to Dave J. Horn and Foster F. Purrington (The Ohio State University, Entomology) for graciously donating Corixidae (specifically the *Sigara decoratella* specimen) from their black-light samples used for Lepidoptera collection from a southern Ohio burn project (supported by the U.S. Forest Service, Northeastern Forest Experimental Station) and to Gary Coovert (Boonshoft Museum, Dayton, Ohio) who provided the Hocking County, Ohio records of *C. edulis*. We greatly appreciate John T. Polhemus (Colorado Entomological Museum, Englewood, Colorado) & Austin B. Richards (Lakewood, Colorado) for reviewing an early draft of this manuscript. Contribution 1237 of the Great Lakes Science Center, United States Geological Survey, 1451 Green Road, Ann Arbor, Michigan 48105.

LITERATURE CITED

- Chordas, S.W. III. 1999. *Hesperocorixa semilucida* (Hemiptera: Corixidae) new to Ohio, with notes on distribution, habitat and color dimorphism. Ohio Biol. Surv. Notes 2. 39-42.
- Chordas, S.W. III and B. J. Armitage. 1998. New Ohio records of Corixidae (Hemiptera). Entomol. News. 109(5):339-342.
- Chordas, S.W. III and P.L. Hudson. 1999. A list of Michigan Corixidae (Hemiptera) with four new state records from the great lakes of Michigan. Entomol. News. 110(4):246-250.
- Chordas, S.W. III, R. L. Stewart Jr. and L. Butler. 1999. First records of the family Notonectidae (Insecta : Hemiptera) from West Virginia. Entomol. News. 110(2):99-102.
- Froeschner, R.C. 1962. Contributions to a synopsis of the Hemiptera of Missouri, Part V. Am. Mid. Nat. 67(1):208-240.
- Henry, T.J. and R.C. Froeschner. 1988. Catalog of the Heteroptera, or true bugs, of Canada and the continental United States. E.J. Brill. New York. 958 pages.
- Hilsenhoff, W. L. 1984. Aquatic Hemiptera of Wisconsin. Great Lakes Entomol. 17(1):29-50.
- Hungerford, H.B. 1934. The genus *Notonecta* of the world. Univ. Kans. Sci. Bull. XXI:5-195.
- Hungerford, H.B. 1948. The Corixidae of the Western Hemisphere (Hemiptera). Univ. Kans. Sci. Bull. 32:1-827.
- Polhemus, J.T., R.C. Froeschner and D.A. Polhemus. 1988. Family Corixidae Leach, 1815, the water boatman, pp 93-118. In: T.J. Henry and R.C. Froeschner, Eds., Catalog of the Heteroptera, or true bugs, of Canada and the continental United States. E.J. Brill. New York. 958 pages.
- Polhemus, J.T. and D.A. Polhemus. 1988. Family Notonectidae Latreille, 1802, the backswimmers, pp 533-540. In: T.J. Henry and R.C. Froeschner, Eds., Catalog of the Heteroptera, or true bugs, of Canada and the continental United States. E.J. Brill. New York. 958 pages.
- Williams, R.N., M.S. Ellis and D.S. Fickle. 1996. Insects in the Killbuck Marsh Wildlife Area, Ohio: 1994 survey. Ohio Jour. Science. 96(3):34-40.